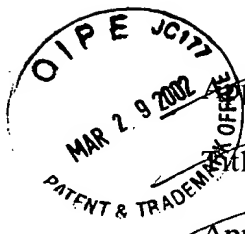


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicants: Tetsuyuki KANEKO, et al.

Title: SUPERCONDUCTING WIRE AND MANUFACTURING METHOD THEREOF

Appl. No.: 09/684,336

Filing Date: 10/10/2000

Examiner: K. Cuneo

Art Unit: 2841

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REPLY UNDER 37 C.F.R. § 1.111

Commissioner for Patents
Washington, D.C. 20231
Box Non-Fee

Sir:

In reply to the Office Action mailed January 3, 2002, applicants request reconsideration of the above-identified application based on the following remarks:

REMARKS

The Office Action mailed January 3, 2002 has been reviewed and the comments of the Patent and Trademark Office have been considered. Claims 1-10 were pending in the application, with claims 7-10 withdrawn from consideration. No claims have been amended, cancelled or added. Therefore, claims 1-10 are pending and claims 1-6 are submitted for reconsideration.

In the Office Action, claims 1-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,171,464 to Steyert, Jr. (hereafter "Steyert"). Applicants respectfully traverse this rejection insofar as it may be applied to the pending claims for at least the following reasons.

The present invention provides a superconducting wire that includes ceramic buried in the surface of a metallic covering material. Steyert, on the other hand, teaches a superconducting wire with ceramic filaments buried **within and throughout the core** of the

metal covering (see Figure 2 of Steyert). The superconducting wire of the present invention is different from Steyert in that ceramic materials are buried in the surface of the metal cover (See Figure 2 of application). Thus, the claimed superconducting wire and the superconducting wire disclosed by Steyert are of a completely different construction.

The objective of Steyert's invention is to obtain **thermal stability** in a superconducting condition by mixing a high specific heat ceramic such as gadolinium oxide or gadolinium-aluminum oxide and copper or aluminum into the matrix. In contrast, the present invention provides the following effects by burying ceramic materials in the surface (see pages 4-6 of the specification).

- a. The mechanical strength can be increased by burying ceramic materials in the metal sheath surface.
- b. By burying the ceramic materials in the metal sheath surface, the reaction between the superconducting phase within the metal sheath and ceramic is suppressed, resulting in a superconducting phase with high purity and excellent superconductivity. Note, if ceramic materials are buried into the inside of the metal sheath, the ceramic and the superconducting phase in the metal sheath react with each other. Therefore, it is difficult to obtain a superconducting phase of high purity with such a construction.
- c. By burying ceramic material in the surface of the metal sheath surface, a gas flowing path can be formed. This solves the problem peculiar to metallic covering oxide superconducting wire, that of a reactive gas occurring and causing the metal-sheath surface to bulge during heat treatment while forming the superconducting phase.

As mentioned above, the claimed invention and Steyert's invention are different in construction and effects. Further, Steyert's does not suggest anything that would lead one of ordinary skill in the art to the claimed invention. Thus, Steyert cannot render the present invention obvious.

In view of the foregoing, applicants believe that the application is in condition for allowance. An early notice to this effect is earnestly solicited. If there are any questions regarding the application or if an examiner's amendment would facilitate the allowance of one or more of the claims, the examiner is invited to contact the undersigned attorney at the local telephone number below.

Respectfully submitted,

March 29, 2002

Date



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Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge deposit account No. 19-0741 for any such fees; and applicants hereby petition for any needed extension of time.